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The Effect of Choice Order on Off Task Behavior in a Child with Autism

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The Effect of Choice Order on Off Task Behavior in a Child with Autism

BY

Lisa R. Cole

THESIS

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Abstract

This research project was designed to examine the effects of child-choice versus clinician-choice over the ordering of activities during speech-language therapy sessions. The dependent variables included disruptive/inappropriate behavior, non-task related verbal behavior, and redirection to the task. The independent variable was the presentation of choice over the ordering of activities within a therapy session.

The subject in this case study was a nine-year-old boy diagnosed with autism. At the beginning of each therapy session either the child or the clinician decided on the ordering of activities. A picture board and picture cards showed the activities that would be completed in each therapy session. Behaviors were then recorded to determine if the amount of off-task behavior varied significantly across the two conditions.

Results of the study revealed a significant difference in the amount of disruptive/inappropriate behavior across the two conditions when the child selected the order of activities. No significant differences were found in the number of times the clinician redirected the child or the number of non-task related verbal behaviors. A significant relationship was found between redirecting the child and disruptive behavior and non-task related verbal behavior when the clinician had control over the ordering of therapy activities. There were no similar correlations when the child selected the order of activities.

The study provides a foundation to further examine the effect of choice on the ordering of activities on off-task behavior in children. The implications of this study could be extended to various settings.

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The Effect of Choice Order on Off Task Behavior in a Child with Autism

Dr. Leo Kanner first described the term autism in 1943 when he did a systematic observation on eleven children with a previously unrecognized syndrome. He noted a variety of behavioral features that were characteristic of all eleven children. These characteristics differentiated the eleven children from children with other psychiatric disorders. These features included an inability to develop relationships with other people, a delay in speech acquisition, the noncommunicative use of speech after it developed, delayed echolalia, pronominal reversal, repetitive and stereotyped play activities, an obsessive insistence on the maintenance of sameness, a lack of imagination, a good rote memory, a normal physical appearance, and an onset during infancy. The most discriminating characteristic of these children was social isolation (Rutter, 1978). The term Kanner coined, autism, means "self" because the children seemed to be intrinsically focused on their own personal world. Since Kanner first identified the syndrome, various definitions have been proposed to identify and designate the characteristic of autism, but Kanner's identification of features has retained its saliency (Richard, 1997).

Autism is a disorder that is included in the category of pervasive developmental disorders. A pervasive developmental disorder, as defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision* (DSM-IV-TR) (American Psychological Association, 2000), is a disorder characterized by severe impairment in several separate areas of development. These include social interaction skills, communication skills, stereotyped behavior, interests and activities. Onset is considered to occur by age three years. Included as pervasive developmental disorders

are Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder, Pervasive Developmental Disorder-Not Otherwise Specified, and Autistic Disorder. The DMS-IV-TR (pg. 75) outlines the following as the criteria for the diagnosis of Autistic Disorder:

A. A total of six (or more) items from (1), (2), and (3), with at least two from

(1), and one each from (2) and (3):

(1) qualitative impairment in social interaction, as manifested by at least two of the following:

(a) marked impairment in the use of multiple nonverbal behaviors such as eye-to eye-gaze, facial expression, body posture, and gestures to regulate social interaction
(b) failure to develop peer relationships appropriate to developmental level
(c) a lack of spontaneous seeking to share enjoyment, interests, or achievement with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
(d) lack of social or emotional reciprocity

(2) qualitative impairment in communication as manifested by at least one of the following:

(a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gestures or mime)
(b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
(c) stereotyped and repetitive use of language or idiosyncratic language
(d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(3) restricted repetitive and stereotyped patterns of behavior, interest, and activities, as manifested by at least one of the following:

(a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
(b) apparently inflexible adherence to specific, nonfunctional routines or rituals
(c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
(d) persistent preoccupation with parts of objects

B. Delays or abnormal functioning in at least one of the following areas, with onset

prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

As can be inferred from the diagnostic criteria, the most current descriptive literature considers autism as a spectrum disorder which affects all aspects of a child's development, including communication, social interaction, and behavioral patterns.

Autism is the third most common developmental disability, affecting approximately 15 children in every 10,000 births however; current epidemiological studies suggest a significantly higher incidence (Richard, 1997). There is a higher incidence of autism in the male population, ranging from 2.6 males to every female, to 4.1 males to every female (Richard, 1997). Gillingham (1995) reported that 60% of people with autism have IQ scores below 50, 20% between 50 and 70, and 20% have scores greater than 70. Other statistics have reported that 2/3 to 3/4 of all children with autism have an IQ below 70 (Richard, 1997). These statistics show that autism is a prevalent disorder that can include a component of cognitive impairment.

As described by Kanner and the DSM-IV-TR criteria, autism has many behavioral characteristics associated with it. These characteristics can directly influence the effectiveness of therapy with an individual with autism (Lovaas, Litrownik, & Mann, 1971). For instance, one of the characteristic features is self-stimulation. Self-stimulatory behaviors, or stereotypies, are repetitive behaviors that the individual with autism engages in, sometimes for prolonged periods of time. These can include hand flapping, twirling objects, body rocking, and other behaviors that provide sensory or kinesthetic feedback (Lovaas, Litrownik, & Mann, 1971). Self-stimulatory behaviors

may interfere with other more appropriate behaviors in the autistic individual. Kern, Koegel, & Dunlap (1984) found that when self-stimulatory behaviors were suppressed, increases in spontaneous responding and play were noticed.

Another possible behavior characteristic of individuals with autism is self-injurious or aggressive behavior. Currently, this type of harmful behavior is believed to be functional in nature. It has been theorized that individuals with autism may try to meet their needs through this inappropriate behavior (Koegel & Koegel, 1995). Until other more functional means of communicating the same message are acquired, this behavior could interfere with a therapy session and result in minimal accomplishment.

Many children with autism also show the characteristic of a demand for sameness and preoccupation with objects. Children with autism may interact with objects in the same way each time they play with them or require the same routine within an activity each day. This preoccupation with sameness can cause many behavior problems if an expected routine is changed. For example, a significant disruption in a therapy session can be triggered if rooms are changed or the activities are different (Koegel & Koegel, 1995).

Language deficits were another aspect of autism noted by Kanner in 1943. Further research has sustained language to be an integral part of the autistic spectrum. Verbal language does not develop at all in a small number of children with autism; at one point it was estimated that up to 50% of children with autism never develop functional expressive language (Prizant, 1983). Due to current advances in language teaching, many more children develop verbal language abilities.

Autistic children can have a spectrum of language disorders ranging from problems with phonology and disfluency to problems with comprehension of language, organization of utterances, prosody, and pragmatics. It is important to remember that all children with autism have a language disorder, as classified by the DSM-IV-TR. In general, the language characteristics of children with autism can be defined as fitting one of three categories: nonverbal, delayed verbal, or echolalic (Koegel & Koegel, 1995). Children who are nonverbal should be taught alternative means of communication and ways to express their intent other than through aberrant behavior. Children with delayed language have some speech but show marked delays in the different language areas, such as phonology, syntax, and semantics. The third characteristic common in autistic language is echolalia. This is described as repetition of an utterance heard in either the immediate or distant past. There utterances are believed to lack communicative intent and possibly serve a self-stimulatory function (Koegel & Koegel, 1995).

Some researchers have linked the cognitive and social deficits seen in autism to a "theory of mind" hypothesis (Baron-Cohen, Tager-Flusberg, & Cohen, 1993). This theory states that individuals with autism have great difficulty interpreting a person's actions within a mental framework. Infants with autism may fail to understand the intentionality of someone's behavior and thus cannot replicate and orient to it. When children with autism do acquire language, they do not use it to share information with others or to ask for new information. Autistic individuals can also have a problem understanding that the speaker and listener have different perspectives in a conversation and often refer to themselves as you (Tager-Flusberg, 1996).

Language intervention has been the focus of many studies to decrease disruptive behavior in children with autism. Koegel, Koegel, & Surrant (1992) tested preschool children to see if a natural language paradigm teaching situation would reduce the disruptive behavior seen in some children with autism. The natural language paradigm included a child-chosen task and was more driven by the child, while an analog teaching task was chosen and driven by the clinician. The researchers examined language targets, disruptive behaviors, and clinician behaviors (e.g., the length of clinician teaching times across both tasks). Results demonstrated that the natural teaching approach that was child-driven produced more correct target behavior and less disruptive behavior among the preschoolers with autism (Koegel et al., 1992).

Because of deficits in communication and social perception and a perseverative behavioral pattern, problem behaviors have been associated with autism. In the past, specific behavioral characteristics of autism were sometimes managed through aversive therapy techniques, such as electric shock. In some cases, these interventions were effective at controlling very severe self-injurious behavior (Elder, 1996). However, recent controversies have raged over the ethical and legal implications of this type of therapy. The National Institute of Health sponsored a statement that gave specific guidelines for future use of electric shock (Elder, 1996). Because of these guidelines, electric shock therapy is not currently used in a widespread manner.

Intensive behavior therapy has gained increased attention in recent years. Programs such as one designed by O. Lovaas (1977) required treatment during most of the child's waking hours and involved almost all of the people in the child's life, including therapists, teachers, and parents. Dramatic success stories have been reported (Singh,

1997), but are suspect due to methodological problems and the lack of replicated success in older children and those with mental retardation (Campbell, Scopler, Cueva, & Hallin, 1996).

The influence of child-preferred activities on social behavior was examined by Koegel, Dyer, and Bell (1987). This study investigated whether engaging in appropriate child-preferred activities, as opposed to engaging in arbitrarily adult chosen activities, related to the amount of social avoidance behavior exhibited. The children in the study were autistic and ranged in age from 4 to 13 years. Results showed that child-preferred activities decreased social avoidance behavior when an adult was present in the room. This study suggested that if a child prefers an activity and is able to share control in choosing the activity, improvements in social behavior might occur.

Foster-Johnson, Ferro, and Dunlap (1994) also examined the effects of child-preferred activities on problem behaviors. This study focused on preferred versus unpreferred curricular activities. Stimulus items were identical in both the preferred and unpreferred activities conditions but were presented in different ways. Usually one task involved labeling (unpreferred) and the other was a more functional task and relevant to real-life circumstances (preferred). The researchers found that all three students with autism (ages 6 to 10) included in the study demonstrated a higher percentage of problem behaviors during the non-preferred activity as compared to the preferred activity. The authors believed the off-task problem behavior occurred more frequently during an unpreferred activity because it allowed the student to avoid the unliked activity. The authors speculated the preferred activity was more pleasant to the student and thus, reduced motivation to avoid the activity.

Moes (1998) evaluated whether providing opportunities to make choices would facilitate the performance of children with autism during teacher-assigned academic tasks. Four children between the ages of five and nine with autism were selected to participate in this study. They all exhibited a range of cognitive and behavioral difficulties related to academic tasks, participated in full-inclusion educational settings, and were given weekly homework assignments as part of their curriculum. During the research sessions, children worked outside of class on homework that was assigned by each student's teacher. All four children brought their regular homework assignments with them each week and participated in either no-choice or choice conditions. All stimulus items necessary for homework completion (e.g., pens/pencils, scissors, glue) were provided. In the no-choice condition, the tutor chose the order of the homework activities, the sequence of items or problems within the homework activities, and the stimulus items necessary for homework completion. In the choice condition, the child was allowed to choose the order of the homework activities, the order of specific items or problems within those selected activities, and the stimulus materials. Positive effects on performance were produced when the children were given the opportunity to choose the specific stimulus items used to complete each task and the order in which the activities/items would be conducted during scheduled sessions. In addition to reductions in disruptive behavior and improvements in on-task behavior among participants, the rate and accuracy of participants' responses also increased substantially under choice conditions. Interestingly, results also suggested that participants appeared to enjoy the homework more when given choices, as more favorable levels of child affect were observed under choice conditions.

Carter (2001) conducted a study to assess the impact of choice making on the performance of children with autism, who exhibit language delays, during naturalistic observation. Three children between the ages of five and seven with autism were selected to participate in this study. With the exception of the manipulated independent variable, the intervention conditions were identical in the no choice and choice teaching conditions. The no-choice condition provided children with preferred toys, but no opportunities to select toys and games to be used as stimulus items necessary to engage in language intervention. Toys and games used in the no-choice condition were ones in which each child had previously shown an interest. In the choice condition, each child was given the opportunity to select the order and games played during the intervention session. Results indicated that providing the opportunity for children with autism to make choice decisions in a language intervention positively affected their disruptive behaviors, social play/pragmatic skills, and acquisition of the target language structure. The children all showed greatly decreased levels of disruptive behaviors, increased play initiations, and higher levels of actions to maintain play in the choice conditions when compared with the no-choice conditions. Additionally, the children showed generalization of the target morpheme to their home settings only following intervention conducted in the choice condition.

Dyer, Dunlap, and Winterling (1990) studied the effects of choice making on children, age 5-11, who exhibited high levels of serious disruptive behavior such as aggression, self-injury, and tantrums. They researched the effects of students making a choice regarding rewards and materials for the educational tasks. The materials they chose from were previous educational tasks that the student had mastered. The

reinforcers had been shown to be preferred stimuli. Throughout the study, each child exhibited lower levels of problem behavior during the choice condition. Because reinforcers provided were the same across both stimuli, the authors speculated that the opportunity to choose might be just as important as the tangible reinforcers provided by the therapists. The results indicated that choice making can produce reductions in specific, objectively measured problem behaviors. The study showed that simply providing choices of preferred reinforcers and maintenance tasks during sessions reduced problem behavior.

Although many studies have been conducted regarding the reduction of problematic/off-task behaviors or the likelihood that a task will be completed when a child prefers an activity or makes choices related to materials used, other variables such as the child having a choice in the order of activities, have not received much research attention. Implications have been made in several studies (Dyer et al., 1990; Koegel et al., 1992) regarding the reduction of problematic/off-task behavior when a child has control or choice in the therapy session, but research has not focused on choice over the ordering of activities as an independent variable. Studies have alluded to this phenomenon, but not directly shown that choice over the order of activities has an effect on off-task behavior. Consequently, the present study was designed to examine the effects on off-task behavior when a child can determine the sequence of activities. Specifically, the present study investigated the effects of choice over the ordering of activities during language therapy for a boy with autism. Based on previous research (Carter, 2001; Koegel, et. al, 1992) it is predicted that there will be fewer off-task

behaviors exhibited when the child has control over the ordering of the activities during therapy sessions.

Method

Participant

The participant of this study was a boy, age nine. A professional had previously diagnosed the boy with autism and the child has no comorbid disorders. He was recruited from the Eastern Illinois University Speech Language Hearing Clinic. The boy had been receiving therapy sessions from the Clinic for over three years. Objectives for his therapy sessions emphasized the development of receptive and expressive language skills, appropriate social behaviors, and the development of spoken language. Goals for the sessions included differentiating basic concepts, reading and comprehending simple adjective-noun phrases, making eye contact in unstructured activities, sequencing a set if three directions, and producing two-word utterances. Parents of the child signed a consent form allowing their child to participate in the study.

Design

The study was a within-subjects design. The independent variable was the presence or absence of choice over the ordering of activities during therapy sessions. This involved whether the order of activities was clinician chosen or child chosen. The dependent variables were related to measures of off-task behavior and included disruptive/inappropriate play, non-task related verbal behavior, and frequency of redirection to the task. See Table 1 for definitions of these behaviors.

Materials

Sessions were recorded by a camcorder. The recordings were compiled on videotapes and viewed on a television. A videocassette recorder was used to play the recorded tapes. An interval tape was used to mark or signal each 10-second interval. The interval tapes were played on a cassette recorder while the recorders viewed the tapes.

An activity data-recording sheet was used, similar to the one used by Gibson, 1999 (see Appendix B). The data had all of the dependent variables listed and the recorders marked the behaviors seen during each 10-second interval. The experimenter totaled the number of checked intervals for each dependent variable for each session.

Procedure

A student clinician from the Speech Language Hearing Clinic, who was blind to the dependent variables being measured, carried out the therapy sessions. The sessions occurred twice a week for forty minutes. This was the standard time and length of therapy the child had experienced previously. The study took place over thirteen weeks, allowing the subject two weeks to adjust to the clinician and to the activities. The sessions were video taped so that they could be analyzed at a later time.

There were up to five activities for the child to do during each session. All of the materials for the different activities were placed in a bag by the clinician, and the clinician prepared for the session before it began. A picture of the child or clinician, depending on who was to select the order of activities for the day, was taped to the door leading into the room. This was intended to assist the child in understanding who would be determining the ordering of activities each day.

The child has learned to use a picture board and is comfortable with one. On days when the clinician chose the order of activities, her picture was taped to the door entering the therapy room. The clinician and the child entered the room and walked to the chalkboard where there was a picture board posted. There were picture cards next to the activity board showing the activities that would be completed that day's session. The clinician picked up the cards and explained to the child what each one meant. The clinician then placed the picture cards on the activity board. Once this was completed, the clinician looked at the first picture and explained to the child that this is the first activity. The clinician and the child went to the table and sat down and the clinician got the materials needed for the first activity. The child next completed the activity. After the activity was completed, the materials were returned to the clinician's bag. For purposes of this study, completion of the activity was defined as completion of clinician's goals to achieve closure on the activity, or when the child's inattention and disruptive behaviors become so overwhelming that the activity was discontinued and could not be completed. The child and clinician then went back to the blackboard where the picture board was located. They took the first picture off the board and discussed that it was complete. The clinician then pointed to the second picture on the board and explained the next activity. The child and clinician then returned to the table and completed the second activity. This procedure was followed until three activities were complete. Once the child completed three activities, he was given three minutes of free time. After the three minutes had elapsed, the child and clinician returned to the board and found the picture for the fourth activity. The clinician explained the activity to the child and they returned

to the table to complete it. The same procedures, as mentioned earlier, were followed until all of the activities had been chosen and completed.

On the days when it was the child's choice of the order of activities, his picture was on the door outside the therapy room. The child and clinician entered the room and walked to the chalkboard where there was a picture board posted. There were picture cards next to the activity board showing the activities that would be completed during that day's session. The clinician picked up the cards and explained each one to the child. The child looked at the pictures on the cards and chose which activity he wanted to do first. Once he chose the activity, he put the picture of the activity on the board. He then chose what activity he wanted to do second, and put that card in second-place on the board. He continued doing this until he had chosen all of the activities. Once this was complete, the clinician looked at the first picture and explained to the child that this was the first activity. The clinician and child went to the table and completed the activity.

The same definition for completion of an activity was used when the child selected the order of activities as was used when the clinician chose the order of activities. After the activity was completed, the materials were returned to the clinician's bag. The child and clinician then went back to the blackboard where the picture board was located. They took the first picture off the board and discussed that it was completed. The clinician pointed to the second picture on the board and explained the next activity. The child and clinician then returned to the table and completed the second activity. This procedure was followed until three activities were complete. Once the child completed three activities, he was given three minutes of free time. After three minutes had elapsed, the child and clinician returned to the board and found the picture for the fourth activity.

The clinician explained the activity to the child and they returned to the table to complete it. The same procedures, as mentioned earlier, were followed until all of the activities had been chosen and completed.

The child had up to five activities to complete during each session. The activities contained the same concepts each week, but they were not identical. Examples of concepts were calendar time, story time, Science, and cooking. The activities for those various concepts varied from week to week, but the basic concepts remained the same.

To make sure differences in off-task behavior were related to choice and not something else, the days of choice and no choice were varied. The choice variable was alternated each week to either Monday or Wednesday (e.g., If the first week was a child choice on Monday and a clinician choice on Wednesday, the second week was a clinician choice on Monday and a child choice on Wednesday).

The experimenter, a graduate student in her second year of study, and a graduate assistant, completed the recordings of the target behaviors. The experimenter trained the graduate assistant on the definitions of the different behaviors and on how to record the behaviors. She was further trained by doing practice trials.

The graduate assistant watched the previously recorded therapy sessions and documented what behaviors occurred during each 10-second interval throughout each activity across every session. A tape was used to signify when the intervals began and ended. A checkmark on a recording sheet was put in the box under that behavior and interval number, if it occurred. The graduate assistant did this until she had completed analyzing all recorded sessions. The experimenter also watched approximately 50 percent of the recorded sessions to obtain interrater reliability.

Interrater Reliability

Three hundred and fifty minutes, approximately 50% of the tapes, were coded for reliability by both recorders. Percentage of interrater reliability was obtained by dividing the number of data collection intervals that both recorders were in agreement by the total number of intervals. The interrater reliability rating was 91.7%.

Results

The purpose of this individual case study was to investigate the effect that choice over the ordering of activities had on off-task behavior during speech/language therapy in a child with autism. The specific independent variables compared were child choice versus clinician choice over the ordering of activities. The dependent variables were the mean number of 10-second intervals during therapy that the child spent being disruptive/inappropriate, engaged in non-task related verbal behavior, and had to be redirected to the task at hand. Nine weeks of the 13-week experimental period yielded data from 18 therapy sessions that could be coded for analysis. Weeks that could not be coded were compromised by client absence or recording equipment failure.

Table 2 presents the mean scores for the dependent variables during the child choice and clinician choice conditions. A paired-samples t-test indicated that contrary to expectations, the frequency of disruptive/inappropriate behavior was significantly higher ($\underline{M}$ = 71.44) when the child ordered the therapy activities than when the clinician selected the ordering of activities ($\underline{M}$ = 44.67), $\underline{t}$ = 2.43, $\underline{p}$ <.041.

Even though disruptive/inappropriate behaviors, overall, occurred more frequently when the child selected the ordering of activities he did appear to eventually accommodate to this change in the typical therapy routine. When the child chose the

ordering of activities, a decrease in disruptive/inappropriate behaviors was noted in later therapy sessions (see Table 3 and Graph 1). This same decrease in disruptive/inappropriate behaviors as therapy progressed was not evident when the clinician chose the order of activities.

There was no significant difference in the number of 10-second intervals that the child spent engaged in non-task related verbal behavior in the child-choice ($\underline{M}$ = 66.44) and clinician choice ($\underline{M}$ = 48.44) conditions, $\underline{t}$ = 1.49, $\underline{p}$ >.05 (see Graph 2). Likewise, there was no significant difference between the child-choice (M = 13.67) and clinician choice (M = 10.56) conditions in the number of intervals the child required redirection to the therapy task, $\underline{t}$ = 1.01, $\underline{p}$ >.05 (see Graph 3).

Table 4 presents correlations among the dependent variables. A significant relationship was found between redirecting child and disruptive behavior ($\underline{r}$ = .69, $\underline{p}$ = .036) and non-task related verbal behavior ($\underline{r}$ = .81, $\underline{p}$ = .008) when the clinician had control over the ordering of therapy activities. No similar significant correlations were found when the child selected the order of activities.

Discussion

Previous researchers have suggested that choice making may lead to less maladaptive/off-task behavior in some children (Dyer, Dunlap, & Winterling, 1990; Koegel, Koegel, & Surrant, 1992). Although researchers have implied that choice over activities might be important, having a choice over the order of activities has not been examined as an independent variable in relationship to off-task behavior. The purpose of this study was to determine if a decrease in off-task behavior would occur when a child

with autism was given a choice in the ordering of activities in a speech-language therapy session.

Contrary to expectations, results from this study indicate that there were more disruptive/inappropriate behaviors when the child had the opportunity to choose the order of activities than when the clinician ordered the activities.

As mentioned earlier, children with autism have a preoccupation with sameness. The boy in this study had been attending the Speech Language Hearing Clinic for over three years and was accustomed to the clinician ordering the activities that took place. This study changed what was familiar to him and introduced a new procedure for therapy sessions. In the past, the clinician was the only one who chose the order of activities in the therapy session, creating structure for both the child and the clinician. This study changed what was familiar to the child and took away some of the therapy routine. It is possible that he reacted to the change and this caused more disruptive/inappropriate behaviors when he selected the order of activities. The raw data for disruptive behavior suggests that, overtime the child was getting used to having the opportunity to choose the order of activities and used to the change in structure. As weeks passed, the child showed less disruptive/inappropriate behaviors when he selected the ordering of activities. If therapy sessions continued, disruptive/inappropriate behaviors may have decreased even more to levels lower than when the clinician chose the order of activities. Because the semester ended, this could not be investigated in the present study.

Another reason for the higher incidence of disruptive/inappropriate behaviors when the child chose the order of activities was that he usually chose his favorite activities first and saved the unpreferred activities until last. Once he completed these preferred

activities only less preferred activities were listed on the activity board. Seeing less preferred activities on the board for the majority of the therapy session could have caused him to be more disruptive/inappropriate. When the clinician chose the order of activities, she did so randomly. This meant that sometimes the child would have to complete an activity that he did not prefer to get to one that he did prefer. The child would see his favorite activities on the board and may have been less disruptive because he was anticipating those activities.

The child had the opportunity to choose the order of activities at the beginning of the session before any one activity took place. He would come into the room and pick which activity he wanted to do first, second, etc., until all five of the activities were ordered. It is also possible that the impact of choosing was gone before the session ended. By the second or third activity, he might not have remembered that had made choices at the beginning of the therapy session. He had the opportunity to choose once and that was it. It is also possible that there were too many activities for this child with autism to order and remember ordering. Future research could investigate how the number of activities or number of choices influences disruptive behavior.

Results of the study indicated that the number of times the therapist redirected the child to the task was not related to who chose the order of activities. Although there was no significant difference between the two conditions, there was a significant relationship between the clinician redirecting the child and the amount of disruptive behavior and non-task related verbal behavior displayed by the child when the clinician had control over the ordering of activities. Even though the clinician conducting the sessions was blind to the redirect variable, her manner of managing and conducting the sessions may

not have been consistent across conditions. She always knew who ordered the activities. The clinician may have unintentionally expected more structure when she chose the order of activities. She chose the order of activities and had expectations about how the session should or would go. On days when the child chose the order of activities, the clinician may not have felt as in control of the therapy sessions and therefore may have been less likely to redirect the child's disruptive behavior. It may be that if the clinician had been consistent in redirection across the two conditions, the child would not have been significantly more disruptive/inappropriate when he chose the order of activities for the therapy session. Future studies might investigate clinician behaviors when children are given a choice in therapy sessions.

Future research studies should continue to investigate the variable of choice. The small sample size used in this study makes it difficult to generalize to other children; studies with more participants are needed. If a larger sample were used, data could be generalized to a larger population. It would also be helpful to use a broader sample of children at different ages and with different levels of functioning to examine the effects of choice. The impact of the variable of choice may vary among children with different levels of functioning.

Future research should also look at the variable of choice over a longer period of time. It would be helpful to know what happens over time when the child has the opportunity to choose the order of activities. A longitudinal study that examines the effect of choice in different settings, such as the school, classroom, home, etc., might be beneficial.

This study found a significant correlation between the number of times the clinician redirected the child and the amount of disruptive behavior displayed by the child when the clinician had control over the ordering of therapy sessions. Another study could be done where a third party chooses the order of activities instead of the clinician. The third party would select the order of activities on some days and would assist the child in selecting the order of activities on other days. By doing this, the clinician would be blind about the variable of choice and who had selected the order of activities for that day's therapy session.

Future research should investigate whether choice over the ordering of activities really makes a difference. It may be that selecting the order of activities is not as helpful in reducing disruptive behavior as is choice over selecting specific activities. Future research could compare in one study the effects of selecting the order of activities versus selecting the activities.

In conclusion, this study provided a foundation to further examine the effect of choice on the ordering of activities on off-task behavior in children. The implications of this study could be extended to various settings. The control of off-task behavior through the option of choice should be examined as a possibility for children with autism. Further research should be conducted regarding the potential long-term effects of this type of behavioral intervention and the potential effects of the choice variable on children with varying disabilities.

References

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorder (4th ed text-revision). Washington DC: Author.

Baron-Cohen, S., Tager-Flusberg, H., & Cohen, D.J. (Eds.) (1993). *Understanding Other Minds: Perspectives from Autism.* Oxford University Press: Oxford.

Campbell, M., Schopler, E., Cueva, J. E., & Hallin, A. (1996). Treatment of autistic disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 35, (2),* 134-143.

Carter, C.M. (2001). Using choice with game play to increase language skills and interactive behaviors in children with autism. *Journal of Positive Behavior Interventions, 3,* 131-151.

Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis, 23,* 515-524.

Elder, J. H. (1996). Behavioral treatment of children with autism, mental retardation, and related disabilities: Ethics. *Journal of Child and Adolescent Nursing, 9, (3),* 28-38.

Foster-Johnson, L., Ferro, J., &Dunlap, G. (1994). Preferred curricular activities and reduced problem behaviors in students with intellectual disabilities. *Journal of Applied Behavior Analysis, 27, (3),* 493-504.

Gibson, S. (1999). The Effect of Choice Order on Off Task Behavior in a Child with Autism. Unpublished Masters thesis, Eastern Illinois University, Charleston.

Gillingham, G. (1995). *Autism: Handle with care.* Arlington, TX: Future Education

Incorporated.

Kern, L., Koegel, R.L., & Dunlap, G. (1984). The influence of vigorous verses mild exercise on autistic stereotyped behaviors. *Journal of Autism and Developmental Disorders, 14,* 57-67.

Koegel, R. L., Dyer, K., & Bell, L. K. (1987). The influence of child-preferred activities on autistic children's social behavior. *Journal of Applied Behavior Analysis, 20,* 243-252.

Koegel, R.L. & Koegel, L.K. (1995). *Teaching Children with Autism.* Paul H. Brooks: Baltimore, MD.

Koegel, R. L., Koegel, L .K., & Surrant, A. (1992). Language intervention and disruptive behavior in preschool children with autism. *Journal of Autism and Developmental Disorders, 22, (2),* 141-153.

Lovass, O. I., Litrownik, A., & Mann, R. (1971). Response latencies to auditory stimuli in autistic children engaged in self-stimulatory behavior. *Behavior Research and Therapy, 9,* 39-49.

Lovass, O.I. (1977). *The autistic child: Language development through behavior modification.* New York: Irvington Publishers.

Moes, D.R. (1998). Integrating choice-making opportunities within teacher-assigned academic tasks to facilitate the performance of children with autism. *The Journal of the Association for Persons with Severe Handicaps, 23,* 319-328.

Prizant, B.M. (1983). Language acquisition and communicative behavior in autism: Toward an understanding of the "whole" or it. *Journal of Speech and Hearing Disorders, 48,* 296-307.

Richard, G. (1997). *Source for Autism.* East Moline: Lingui Systems.

Rutter, M. (1978). Diagnosis and definition of childhood autism. *Journal of Autism and Childhood Schizophrenia, 8,* 139-161.

Singh, N. N. (Ed.). (1997). *Prevention and treatment of severe behavior problems: Models and methods in developmental disabilities.* Pacific Grove, CA: Brooks and Cole.

Tager-Flusberg, H. (1996). Pervasive developmental disorder, commonly abbreviated as PDD (editorial). *Journal of Autism and Developmental Disorders, 27,* 364-377.

Table 1

Dependent Variables and Definitions

Non-Task Related Verbal	The child displayed non-task related verbal behavior (e.g. screams, yells, hums, babbles, or makes any noise unrelated to the task).
Disruptive/Inappropriate Behavior	The child displayed behavior that was not appropriate to the task or was physically disruptive (e.g. stands up, leaves work area, hugs on clinician, flings arms around, hits table, hits self or clinician, or throws something).
Redirection to the task	A verbal or physical redirection to the task was given by the clinician.

(adopted from Gibson, 1999)

Table 2

Across All Therapy Sessions,
Mean Number of 10-second Intervals Spent Being

Condition	Disruptive	Non-task Verbal	Redirected to Task	Overall
Child-choice	71.44* (26.24)	66.44 (35.05)	13.67 (7.45)	50.52
Clinician-choice	44.67 (16.18)	48.44 (24.46)	10.56 (4.80)	34.56
Overall	58.06	57.44	12.12	42.54

*Note $p < .05$.
Standard deviations are in parenthesis.

Table 3

Number of Disruptive/Inappropriate Behaviors That Occurred

Week	Child-Choice	Clinician-Choice
1	114	51
2	79	45
3	87	36
4	83	67
5	82	18
6	78	33
7	31	61
8	41	32
9	48	59

Table 4

Correlations Among the Dependent Variables

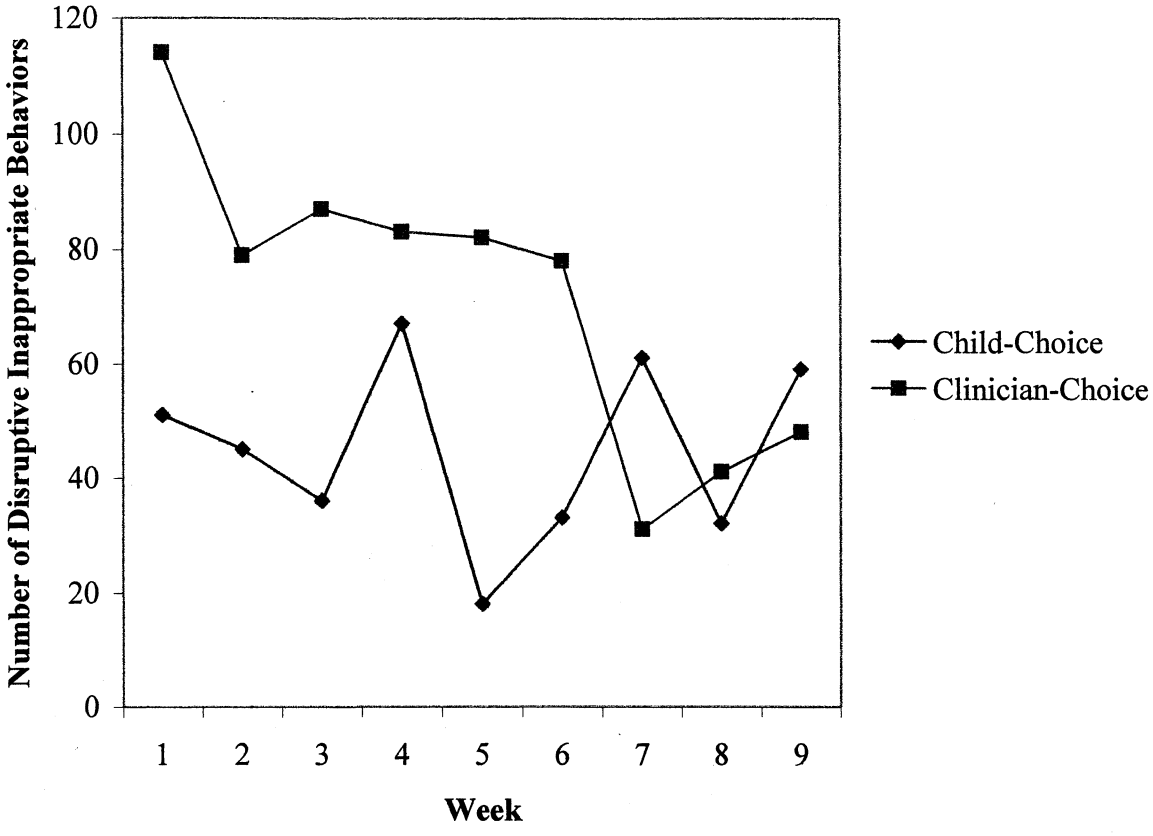
		CHLDDIS	CLINDIS	CHLDNTV	CLINNTV	CHLDREDI	CLINREDI
CHLDDIS	Pearson Correlation	1.000	-.169	-.239	-.345	.486	-.246
	Sig. (2-tailed)	.	.664	.536	.363	.185	.523
	N	9	9	9	9	9	9
CLINDIS	Pearson Correlation	-.169	1.000	-.520	.511	-.298	.698*
	Sig. (2-tailed)	.664	.	.151	.160	.437	.036
	N	9	9	9	9	9	9
CHLDNTV	Pearson Correlation	-.239	-.520	1.000	.294	.321	-.005
	Sig. (2-tailed)	.536	.151	.	.442	.400	.989
	N	9	9	9	9	9	9
CLINNTV	Pearson Correlation	-.345	.511	.294	1.000	.180	.811**
	Sig. (2-tailed)	.363	.160	.442	.	.643	.008
	N	9	9	9	9	9	9
CHLDREDI	Pearson Correlation	.486	-.298	.321	.180	1.000	-.099
	Sig. (2-tailed)	.185	.437	.400	.643	.	.800
	N	9	9	9	9	9	9
CLINREDI	Pearson Correlation	-.246	.698*	-.005	.811**	-.099	1.000
	Sig. (2-tailed)	.523	.036	.989	.008	.800	.
	N	9	9	9	9	9	9

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

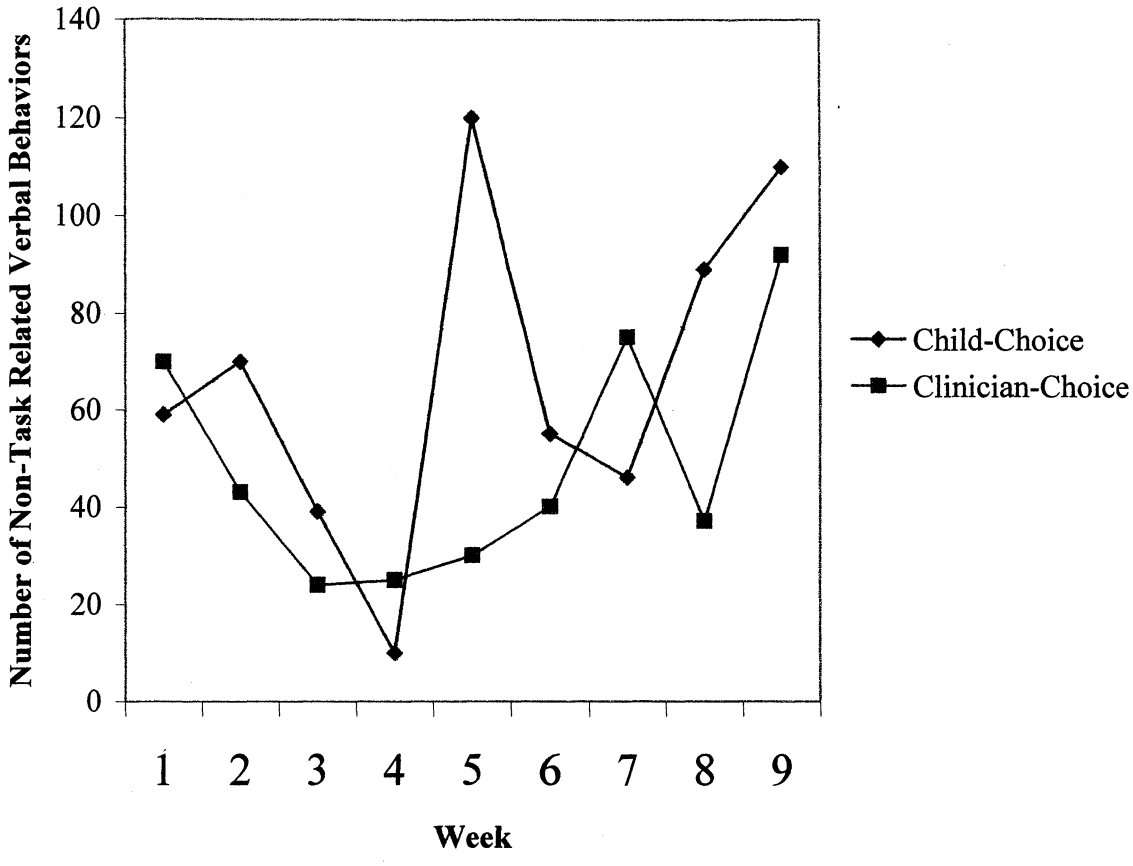
Graph 1

Number of Disruptive/Inappropriate Behaviors



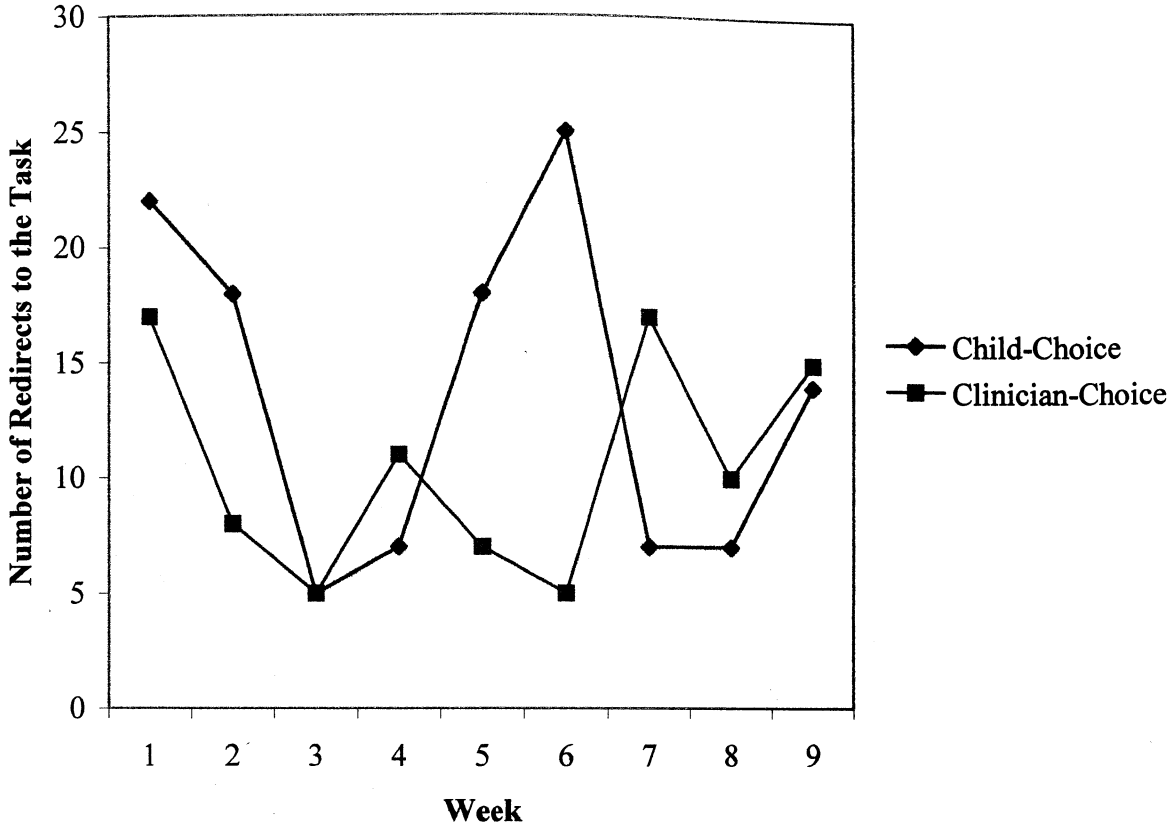
Graph 2

Number of Non-Task Related Verbal Behaviors



Graph 3

Number of Redirects to the Task



Appendix A

Parental Permission

I grant permission for my child,_____, to participate in the research study, "The Effect of Choice Order on Off Task Behavior in Children with Autism". This study will be incorporated into regularly scheduled therapy sessions and will not compromise therapy objectives. This study will be conducted by Lisa Cole, a graduate student in the Department of Psychology, Eastern Illinois University, Charleston, Illinois under the direction of Dr. Linda Leal, EIU Psychology Professor. Therapy sessions will be videotaped and saved for future data analysis by Lisa Cole and a graduate assistant from the Psychology Department. Since the videotapes will be taken out of the Speech-Language Hearing Clinic, it is the sole responsibility of Lisa Cole and the graduate assistant to keep confidential any information regarding the child, including the videotapes. At the conclusion of this research study, the videotapes will be stored by Dr. Leal in a secure location. Please contact Dr. Leal at 217-581-2158 or Lisa Cole at 217-728-4169 for questions and concerns.

I understand that the information in this study will be reported anonymously.

_____
Parent Name (Print)

_____
Parent Signature

_____
Child's Birthdate

_____
Today's Date

Activity Data Recording Sheet

DATE:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Non-Task Related Verbal																														
Disruptive/Inappropriate Behavior																														
No Response																														
Redirect to Task																														

_____ % Accuracy

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Non-Task Related Verbal																														
Disruptive/Inappropriate Behavior																														
No Response																														
Redirect to Task																														

_____ % Accuracy

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Non-Task Related Verbal																														
Disruptive/Inappropriate Behavior																														
No Response																														
Redirect to Task																														

_____ % Accuracy

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Non-Task Related Verbal																														
Disruptive/Inappropriate Behavior																														
No Response																														
Redirect to Task																														

_____ % Accuracy

Non-Task Related Verbal - The child displayed non-task related verbal behavior (e.g. screams, yells, hums, babbles, or makes any noise unrelated to the task.
Disruptive/Inappropriate Behavior - The child displayed behavior that was not appropriate to the task or was physically disruptive (e.g. stands up, leaves work area, hugs on clinician, flings arms around, hits table, or throws something).
No Response - The child has no reaction to the situation and does not respond physically or verbally.
Redirect to Task - A verbal or physical redirection to the task was given by the clinician.